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The effects of procedural injustice on the use of violence against police by Occupy Wall Street protesters

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ABSTRACT

While a large, cross-disciplinary literature exists on crowd dynamics and protester behavior, few studies have tested the effects of perceived injustice on protester behavior. Based on data from a survey of Occupy Wall Street protesters in New York City, we explore the influence of perceptions of unjust police behavior on the use of violent resistance by protesters. We test the direct effects of two perceptual measures of procedural injustice and four control variables on self-reported use of violence against police. We also test the indirect effects of these variables on protester use of violence through an attitudinal measure of support for the use of violence against police. Findings reveal that the dominant predictor of protester violence against police is the perception that police use force unjustly against protesters. Level of participation in OWS and attitudes toward violence also exert significant effects on self-reported use of violence against police among protesters.

KEYWORDS

Protest policing; procedural justice; use of force; Occupy Wall Street

On 17 September 2011, thousands of protesters flooded lower Manhattan and established a makeshift encampment in Zuccotti Park near Wall Street. The Park became the epicenter of a worldwide movement known as Occupy Wall Street (OWS). Occupy protesters adopted a series of strategies and tactics to protest economic and social inequality in the United States, focusing especially on the influence of corporations at all levels of government (Wheeler, 2011). The Occupy movement spread quickly throughout the United States and around the world. In New York City, hundreds of protesters camped out in Zuccotti Park and, together with throngs of supporters, engaged in a variety of marches, rallies, and other events (Xia, 2012). Throughout the occupation, protesters and police clashed routinely, sometimes violently (Vitale, 2011). On 1 October 2011, for example, the police arrested more than 700 protesters in a single sweep at what has been dubbed ‘The Battle of the Brooklyn Bridge’ (Bunch, 2011). On 15 November 2011, the NYPD forcibly evicted all remaining protesters from Zuccotti Park during a midnight raid (Barron & Moynihan, 2011).

After the eviction, OWS protesters continued to engage in actions and marches against government agencies, banks, and corporations. Throughout the entire OWS movement, protesters claimed a ‘firm and consistent commitment to nonviolence’ (Schneider, 2011). In spite of these claims, a subset of OWS protesters continued to advocate for the use of violence as a legitimate protest tactic (Maguire, Barak, Wells, & Katz, *in press*; Schneider, 2011).

Previous research has found that protesters' *attitudes* toward the use of violence against police are influenced, in part, by their perceptions of the extent to which police behave unjustly toward protesters (Maguire et al., *in press*; Maguire et al., 2016). However, little is known about the extent to which perceptions of procedural injustice influence actual violent *behavior* among protesters. Drawing on data from a 2012 survey of OWS protesters, this paper tests the direct effects of perceptions of procedural injustice on self-reported violent behavior against police by protesters. We also test the indirect effects of procedural injustice on violent behavior against police through an attitudinal measure of support for the use of violence against police.

Literature review

A robust body of scholarship focuses on police repression within the context of social movements (e.g., Earl, 2003; Marx, 1970; McLeod & Detenber, 1999; Moore, 1998; Stark, 1972; Vitale, 2007). Social scientists from several disciplines have studied altercations between police and protesters (e.g., Drury & Reicher, 2009; McPhail et al., 1998; Radburn et al., 2016; Reicher, 1996, 2008; Stott & Drury, 2000). Yet, few studies have explicitly sought to uncover the factors influencing protesters' attitudes toward the use of violence against the police. Fewer still have explored factors influencing the connection between the attitudes and behaviors of protesters. In examining the use of violence by protesters, we draw on relevant scholarship from research on social movements, crowd psychology, and procedural justice and legitimacy.

Both police and protester use of violence have been examined in the protest policing literature (e.g., Davies & Dawson, 2016; Earl & Soule, 2006; Gorringer et al., 2012a, 2012b; Nassauer, 2014). The United States has recently experienced an uptick in violent protests and riots (Davies & Dawson, 2016), and many scholars have highlighted a parallel rise in the use of aggressive protest policing strategies (Gillham et al., 2013; McPhail et al., 1998; Vitale, 2005, 2007).

Although police sometimes justify the use of force against protesters as necessary to protect officers and the public, the indiscriminate use of force by police may actually endanger officers and the public (Maguire et al., 2016; see also, Adang & Cuvelier, 2001). Research suggests that protesters are more likely to rebel and endorse the use of violence in response to repressive tactics by state agents (Blumenthal, 1973; Dercole & Davenport, 1974; Escobar, 1993; Gupta et al., 1993; Kahn, 1971; Kritzer, 1977; Lichbach, 1987; White, 1989). When aggressive police behavior during protests is viewed by protesters as unjustified, it often has the effect of instigating rather than reducing violence (Maguire, 2016; Reicher et al., 2004; Vitale, 2005, 2007).

The Elaborated Social Identity Model (ESIM) provides a useful theoretical framework for understanding these dynamics. According to Drury and Reicher (2009), police behavior alters the social identities of protest participants, which, in turn, can lead protesters to rebel against police (Reicher, 1996, 2008; Stott & Reicher, 1998a, 1998b). When police take enforcement action against entire crowds in response to the behavior of few participants, moderate crowd members begin to identify more closely with 'radical' crowd members in opposition to the police (Drury & Reicher, 2009). Stott and Reicher (1998a) explain that police often view crowds as easily influenced by the contagious attitudes and behaviors of troublemakers in their midst. Thus, police see crowds as dangerous and therefore they take enforcement actions that are consistent with this view (Stott & Reicher, 1998a; see also Earl & Soule, 2006; Stott, 2003). However, this perspective is based on outdated conceptions of crowd psychology.

A social identity perspective on police-protester dynamics is also consistent with the large body of scholarship on procedural justice and legitimacy. Procedural justice refers to the fairness of the processes used by decision-makers when interacting with those who are subordinate to their authority (Folger, 1977; Thibaut & Walker, 1975; Thibaut et al., 1974; Tyler, 2003). As applied to legal settings, procedural justice theory holds that people's internalized sense of duty to obey the law is influenced by perceptions of process fairness during encounters with legal authorities (Johnson et al., 2014; Lowrey et al., 2016; Tyler, 1990, 2003, 2005; Tyler & Huo, 2002). Both formal and informal aspects of authorities' decision-making procedures and treatment of others influence procedural justice evaluations.

These aspects include: decision quality and decision-maker justification; perceptions of authority figures' behavior; opportunities for error correction (i.e., the ability to address incorrect decisions); participant representation in the decision-making process (e.g., advocate, attorney); and, the ability for participants to provide input in the decision-making process – sometimes referred to as 'voice' (Bies & Shapiro, 1988; Blader & Tyler, 2003; Brockner et al., 2001; Casper et al., 1988; Folger, 1977; Tyler, 1988; Thibaut & Walker, 1975).

When individuals believe that authority figures treat them fairly, they are more likely to view these authorities and the institutions they represent as legitimate. Under such circumstances, people are also more willing to cooperate and comply with the law and legal authorities (Gau & Brunson, 2010; Lind & Tyler, 1988; Sunshine & Tyler, 2003; Tyler, 1988, 1990, 2003; Tyler & Huo, 2002). Thus, decisions to obey authority figures and the law are not merely shaped by instrumental considerations, like the risk of being caught and punished, but by normative concerns, such as whether or not legal authorities behave fairly and are therefore viewed as legitimate and worthy of voluntary compliance (Pryce et al., 2016). As Tyler notes, the key factor shaping public behavior toward the law and legal authorities 'is the fairness of the processes legal authorities use when dealing with members of the public,' (2003, p. 1). The research evidence suggests that when police exercise authority unfairly, they inadvertently promote alienation, defiance, and rebellion (Sherman, 1993, 2010; Sunshine & Tyler, 2003).

Taken together, ESIM and procedural justice theory provide a potent framework for understanding the relationships between police and protesters. ESIM is useful for understanding social identity dynamics within crowds, and procedural justice theory provides a useful framework for understanding people's reactions to the behavior of legal authorities (Maguire, 2016; Maguire & Oakley, *in press*). An integrated perspective would suggest that when authority figures treat crowd members unfairly, people view the authorities as procedurally unjust and less legitimate, and therefore less worthy of cooperation and compliance. These assessments then influence the social identities of crowd members in the manner articulated by ESIM, thereby triggering defiance and rebellion (Drury et al., 2003; Drury & Reicher, 2009; Reicher et al., 2004; Stott & Drury, 2000; Stott et al., 2012).

Two recent studies of protester–police dynamics by Maguire et al. (2016, *in press*) apply procedural justice theory to the crowd policing context and provide evidence in support of this claim.¹ In the spring of 2012, Maguire and colleagues surveyed 136 Occupy protesters in Washington, DC (Maguire et al., 2016), and 302 Occupy protesters in New York City (Maguire et al., *in press*). Analysis of the Washington, DC, data revealed that generalized perceptions of procedural justice were associated with protester support for the use of violence against police. However, experiencing or observing unjust police use of force was not associated with support for the use of violence (Maguire et al., 2016). Analysis of the New York City data revealed the opposite pattern: a generalized measure of procedural justice was not associated with support for the use of violence against police, whereas experiencing or observing more serious forms of injustice – such as making false arrests and using excessive force – did influence support for the use of violence against police (Maguire et al., *in press*).

The authors speculate that the different findings in these two settings may be due to differences in the relationships between police and protesters. In DC, allegations of police use of force were relatively rare, and allegations of serious abuse of authority were much less frequent than in New York City (Maguire et al., 2016). In New York City, the police behaved in a much more forceful and aggressive manner, beating protesters, deploying chemical agents, and making mass arrests under questionable circumstances (Gillham et al., 2013; Knuckey et al., 2012; Vitale, 2011). Protesters in DC may have been more sensitive to subtler forms of procedurally unjust treatment, while those in New York City were less concerned with these forms of injustice because they faced significantly more aggressive forms of procedural injustice.

Taken together, the multidisciplinary literature on crowd psychology, protest policing, and procedural justice provides a useful framework for examining the relationships between police and OWS protesters. The research suggests that the strategies and tactics used by police to handle protests can influence protesters' attitudes, intentions, and behaviors. The current study tests the effects of

perceptions of unjust police behavior on support for the use of violence against police and self-reported use of violence against police by OWS protesters.

Methods

Paper and pencil surveys were administered to 302 individuals who participated in two OWS protest events in New York City.² Survey data were collected from 50 individuals who participated in an OWS meeting on 15th March 2012 and from 252 individuals who participated in a protest event in Zuccotti Park on 17th March 2012. Zuccotti Park was the home base of OWS in New York City until protesters were removed in November 2011. Protesters 're-occupied' the park on 17th March, the six-month anniversary of OWS. We attempted to survey all individuals age 18 and older who self-identified as an OWS protester and attended the meeting or the Zuccotti Park protest event on 15th and 17th March 2012. Despite these efforts, we know little about the representativeness of the sample.³

We attempted to survey as many OWS participants as possible because conventional random sampling methods would have been difficult to carry out. First, a reliable list of OWS participants did not exist, and therefore we had no sampling frame. Second, the event in Zuccotti Park had amorphous boundaries where people routinely entered and exited, including members of the research team. A core group of committed OWS participants frequently attended events and actions. OWS also attracted infrequent and intermittent participants who attended few events. The survey data described here likely represents the perspectives of the most active OWS participants, but may not represent the perspectives of less active participants.⁴ During the collection of survey data at Zuccotti Park, the research team received anecdotal information suggesting that the study had reached saturation; several OWS participants we invited to complete the survey reported that they had already filled out the survey. We stopped data collection when it became clear we were starting to wear out our welcome by continuing to invite people to participate who had already completed a survey.⁵

The survey questions were printed on both sides of a single sheet of paper. All questions were closed-ended with the exception of one open-ended item that asked respondents to list the ways in which they were involved in the movement. The survey instrument was formatted using optical mark recognition (OMR) technology that enabled respondents to answer survey questions by filling in bubbles. We processed the completed surveys using an OMR scanner to increase data accuracy. The survey questions focused primarily on respondents' perceptions of, observations of, and interactions with 'police in the area,' which the instrument defined as police officers located in and around the area where OWS protests took place. In New York City, this referred primarily to the NYPD, although other law enforcement agencies sometimes played a role in policing the OWS protests. Importantly, the questions about police were not focused on a single event or interaction, but on respondents' cumulative experiences with police in the area throughout their involvement with OWS.

We test a multivariate model that seeks to explain variation in OWS protesters' self-reported use of violent resistance against police officers during their involvement with the movement. The two primary independent variables of interest measure different aspects of procedural injustice. The first measures general perceptions of the extent to which the police behaved in a procedurally unjust manner during their interactions with OWS protesters. The second measures specific perceptions of the extent to which the police used force unjustly against OWS protesters. We include four control variables in the model. We test the direct effects of all six independent variables on OWS participants' self-reported use of violent resistance against the police. We also test the indirect effects of these six independent variables on violent resistance through an attitudinal measure of support for the use of violence against the police. The full multivariate model to be tested is depicted in Figure 1 (the four control variables are collapsed for visual clarity). We use structural equation modeling methods to estimate the model, including a multiple imputation approach that has been shown to perform well for dealing with missing data (Asparouhov & Muthén, 2010; Enders, 2010). In the next section, we describe our variables in more detail.

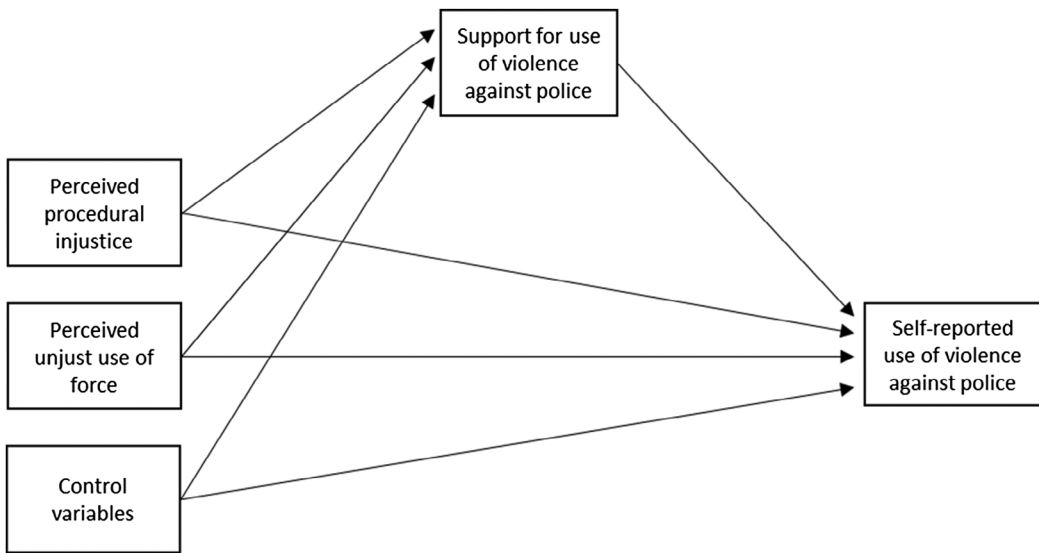


Figure 1. Structural model to be tested.

Dependent variable

The dependent variable is a self-reported measure of protesters' use of violence against the police during their involvement with the Occupy movement. We constructed two alternative specifications of the dependent variable using survey items that asked about three different forms of violent resistance against the police: resisting search or arrest; grabbing, pushing, hitting, or kicking police; and throwing an object at police. Respondents were asked to check a box for each act in which they had personally participated (0 = no, 1 = yes). More than twenty percent of participants (20.9%) reported engaging in at least one form of violent resistance against police, with 16.6% reporting that they resisted search or arrest; 7% that they grabbed, pushed, hit, or kicked a police officer; and 4% that they threw an object at a police officer. Our first specification of the dependent variable uses a 'variety score,' which is based on the sum of these three binary variables, thus resulting in a measure that ranges from zero to three (Ferrington, 1973; Porterfield, 1943; Sweeten, 2012). Higher scores indicate that the individual engaged in more types of violent resistance. Our second specification is a simple binary measure of whether the respondent reported engaging in *any* of the three forms of resistance (no = 0, yes = 1). Using both measures allows for greater confidence in assessing the effects of the independent variables.

Independent variables

Consistent with the literature on procedural justice and the process-based model of regulation, we examine the influence of two perceptual measures of procedural injustice on protesters' use of violent resistance against police. The first is a general measure of the extent to which protesters perceive police in the area as behaving in a procedurally unjust manner. We measure procedural injustice using a five-item additive index (see Appendix A). We reverse coded the items because in the original coding, higher scores were associated with greater levels of perceived procedural justice rather than injustice. After we completed the reverse coding, scores on the index ranged from 10 to 25, with a mean of 21.5 and a median of 23. Higher scores on the index reflect a perception that police in the area behave in a more procedurally unjust manner toward protesters.⁶

Most composite measures of procedural justice or injustice include several indicators like those included in the first measure. In the context of policing, however, there is a compelling theoretical justification for including an additional measure that taps into more serious forms of procedural

injustice. Bittner (1970, p. 46) once famously defined the role of the police as ‘the distribution of non-negotiably coercive force employed in accordance with the dictates of an intuitive grasp of situational exigencies.’ Given the centrality of the use of force in the police role and its profound implications for police-community relations, it seems fitting to include a measure of procedural justice or injustice that focuses specifically on this issue. Thus we included a composite measure of the extent to which OWS participants observed or experienced police using force unjustly against protesters.⁷ Consistent with Maguire, et al. (*in press*), we measured perceptions of unjust use-of-force using a seven-item additive index (see Appendix A). Scores on the index ranged from 5 to 21, with a mean of 10.5 and a median of 10.0. Higher index scores indicate a perception that police in the area use unjust force against protesters more frequently. Our diagnostics revealed that a natural log transformation of this variable provided the best fit.

In addition to the two primary independent variables we have just described, we also included four control variables in the model. These include the respondent’s race (white = 1, else = 0); the respondent’s self-reported level of participation in the Occupy movement (‘full or regular’ participation = 1, ‘partial or occasional’ participation = 0); the respondents’ recollection of his or her attitudes towards the police prior to joining the Occupy movement (measured on a 5-item Likert scale), and a composite measure of the respondent’s stake in conformity. We included a stake in conformity measure because research suggests that people with a greater stake in conformity may be less likely to embrace violence (Paternoster et al., 1997; Sherman & Smith, 1992; Toby, 1983).⁸

Furthermore, consistent with Figure 1, we also included an attitudinal measure of support for the use of violence against police as a mediator between the six independent variables and the dependent variable. To the extent that attitudes influence behavior, people’s *attitudes* towards the use of violence might influence their *actual* use of violence (Azjen & Fishbein, 2005; Blumenthal, 1975; Markowitz & Felson, 1998). Thus, our mediator variable measures respondents’ views on the extent to which the use of violence against police is a reasonable means of achieving social change. Prior research using the process-based model has found that perceptions of procedural injustice influence people’s support for the use of violence against police (Maguire et al., 2016, *in press*). Support for the use of violence is measured using a three item additive index. Respondents were asked about their attitude towards using minor (pushing or shoving), moderate (hitting or kicking), and severe (throwing objects or using a weapon) forms of violence against police. Higher scores on the index reflect greater support for the use of violence against police to achieve meaningful social change. Table 1 provides descriptive statistics for all variables included in the model.

Table 1. Descriptive statistics for all variables included in multivariate model.

Variable	Min	Max	Mean	Median	S.D.	N
<i>Dependent variable</i>						
Self-reported use of violence against police (ordinal)	0	3	.28	0	.61	302
Self-reported use of violence against police (binary)	0	1	.21	0	.41	302
<i>Independent variables</i>						
Perceived procedural injustice by police	10	25	21.52	23	3.48	279
Perceived unjust use of force by police	5	21	10.46	10	3.95	265
Race	0	1	0.62	1	0.49	302
Level of participation in OWS	0	1	0.69	0	0.47	302
Attitudes toward police before OWS	1	5	2.35	2	1.21	290
Stake in conformity	-1.80	1.93	0	0	1.00	272
<i>Mediator variable</i>						
Support for the use of violence against police	1	15	6.37	5	3.69	295

Results

We estimated the full multivariate model in Figure 1 using a robust maximum likelihood (MLR) estimator available in Mplus (Muthén & Muthén, 1998–2015). Table 2 provides fully standardized regression estimates for three outcomes: support for the use of violence against police (which serves as a mediator as shown in Figure 1), self-reported use of violence against police (coded as ordinal), and self-reported use of violence against police (coded as binary). Furthermore, we present two sets of results for each outcome, one based on listwise deletion (in which cases with missing data on any variable in the model are excluded) and one based on multiple imputation.⁹ For the multiple imputation estimates, we imputed ten independent data sets. Consistent with the rules proposed by Rubin (1987), we averaged the parameter estimates across the imputed data sets.

As shown clearly in Table 2, the results from the imputed data sets are quite close to the results from the non-imputed data-set for all three outcomes. Given the strong overlap between the two sets of estimates, here we focus primarily on the results from the imputed data sets. The first outcome shown in Table 2 is support for the use of violence against police. This is a continuous variable, therefore our parameter estimates are derived from linear regression models. Our findings reveal that perceived procedural injustice by police does not have a statistically significant effect on support for the use of violence against police. However, perceived unjust use of force by police has a strong, positive effect on support for the use of violence against police ($\beta = .31, p < .001$). Among the control variables included in the model, race and level of participation in OWS do not have statistically significant effects on support for the use of violence against police. Respondents' recollections of their attitudes toward police before joining OWS have a significant negative effect ($\beta = -.17, p = .006$) on support for the use of violence against police. This finding suggests that those participants who had positive attitudes toward the police prior to OWS were less likely to support the use of violence against police in the area once they joined OWS. Finally, stake in conformity has a significant negative effect on support for the use of violence against police ($\beta = -.13, p = .030$).

Table 2. Regression estimates of direct effects (fully standardized coefficients).

Variable	Support for the use of violence against police		Self-reported use of violence against police (ordinal)		Self-reported use of violence against police (binary)	
	Non-imputed	Imputed	Non-imputed	Imputed	Non-imputed	Imputed
<i>Independent variables</i>						
Perceived procedural injustice by police	.08	.03	.04	.07	.05	.10
Perceived unjust use of force by police	.27***	.31***	.36**	.35**	.33*	.30*
Race	.01	-.04	-.00	.01	.00	.01
Level of participation in OWS	-.12	-.05	.23*	.26**	.23*	.27**
Attitudes toward police before OWS	-.14*	-.17**	-.08	-.05	-.08	-.06
Stake in conformity	-.14*	-.13*	-.04	-.01	-.04	.01
<i>Mediator variable</i>						
Support for the use of violence against police	–	–	.18*	.18*	.16*	.17*
Explained variance (R^2)	15.8%	17.0%	36.7%	39.2%	32.6%	35.4%
Number of cases (N)	236	295	236	302	236	302

* $p < .05$; ** $p < .01$; *** $p < .001$.

The second outcome shown in Table 2 is self-reported use of violence against police, which in this case is coded as an ordinal variable with four categories. The parameter estimates are derived from ordinal logit models. Results show that perceived procedural injustice by police does not have a statistically significant effect on self-reported use of violence against police. However, perceived unjust use of force by police has a strong, positive effect on the use of violence against police ($\beta = .35, p = .000$). Level of participation in OWS is the only control variable to have a statistically significant effect on the use of violence against police ($\beta = .26, p = .003$). Respondents with a greater degree of involvement in OWS were more likely to engage in violence against police. Support for the use of violence against police, which is specified as a mediator in our multivariate model (see Figure 1), also has a significant positive effect on self-reported use of violence against police ($\beta = .18, p = .017$).

The third outcome shown in Table 2 is a binary measure of self-reported use of violence against police. Because the outcome is dichotomous, our parameter estimates are derived from binary logit models. Once again, perceived procedural injustice by police does not have a statistically significant effect on self-reported use of violence against police. Perceived unjust use of force by police has a strong, positive effect on the use of violence against police ($\beta = .30, p = .011$). Again, level of participation in OWS is the only control variable that has a statistically significant effect on the use of violence against police ($\beta = .27, p = .002$). Our mediator variable, support for the use of violence against police, also has a significant positive effect on self-reported use of violence against police ($\beta = .17, p = .026$).

Our multivariate model (see Figure 1) also specified indirect effects of the six independent variables on self-reported use of violence against police through an attitudinal measure of support for the use of violence against police. This specification acknowledges the possibility that the independent variables may exert both *direct* effects on violent behavior and *indirect* effects on violent behavior through violent attitudes. We tested the indirect effects of all six independent variables on our ordinal measure of self-reported use of violence against police. The standard errors of the indirect effects are computed using the Delta method (MacKinnon, 2008; Muthén et al., 2016). The findings showed that only one independent variable, perceptions of unjust use of force by police, had a statistically significant indirect effect ($p = .015$). This significant indirect effect is positive, which suggests that when protesters perceive police as engaging in unjust use of violence against them and their peers, they develop more violent attitudes toward the police, which in turn are associated with greater self-reported violent behavior toward the police.

Discussion

The findings presented here add to a growing body of scientific knowledge on the role of procedural injustice in shaping violent resistance to police authority. While prior research (Jackson et al., 2013; Maguire et al., 2016, *in press*) has already established a link between procedural injustice and violent *attitudes*, this study shows that procedural injustice can also influence (self-reported) violent *behaviors*. Our findings reveal that perceptions of procedural injustice can have both direct effects on self-reported violent behavior, as well as indirect effects through attitudes toward the use of violence against police. Thus, our findings reveal an important connection between procedural justice, attitudes toward the use of violence, and actual violent behavior. However, only one of our two measures of procedural justice exhibited these effects. Our measure of generalized perceptions of procedural injustice (which is consistent with most of the measures used in the literature) was not associated with violent attitudes or behaviors. On the other hand, our measure of observing unjust officer use of force had both a direct effect on violent behavior and an indirect effect through violent attitudes. Moreover, this variable had the largest standardized (direct) effect among the independent variables included in the model.

To date, only one study (to our knowledge) has examined the influence of procedural justice on violent behavior (Papachristos et al., 2012). In that study, Papachristos and his colleagues tested the indirect effects of procedural justice and legitimacy on two types of violent and/or law-violating behavior: carrying a gun and getting in a fight. Data for the study were derived from a survey of 141 known gun offenders with at least one prior arrest for a violent crime and who were currently on

either probation or parole in Chicago. The authors found that perceptions of procedural justice were associated with an increased belief in state legitimacy (2012). They also found that while perceptions of legitimacy appeared to influence premeditated crimes, like carrying a gun, they did not appear to influence 'spur of the moment' offenses, like getting into a fight (2012).

The present study expands upon those findings by allowing for both direct and indirect effects of two forms of procedural injustice on violent behavior. In contrast to Papachristos and his colleagues, our analysis finds that general perceptions of procedural justice do not influence violent attitudes or behaviors in protest settings. However, a more specific measure of procedural injustice (in the form of unjust officer use of force) is a strong predictor of both violent attitudes and behaviors.

These findings are consistent with previous research on social movements, crowd psychology, and protest policing (Drury & Reicher, 2009; Kritzer, 1977; Nassauer, 2014). For instance, Kritzer's (1977) theory of unconventional political action suggests that protesters' use of violence is instigated by a combination of normative judgments about violence and police provocation. While protesters may initially seek to use nonviolent techniques, if they encounter a sufficiently high threshold of police violence that outweighs their normative proscriptions against the use of violence, they may escalate their level of defiance and rebellion and begin to view violence as a reasonable approach. Nassauer (2014) echoes this argument, noting that the likelihood of protests becoming violent increases when police and protesters do not respect one another's space, when police are disorganized and/or communicate with one another ineffectively, when police use riot gear, or when lines of communication between protesters and police break down. Our findings from OWS are consistent with this view of police-protester interactions. In the face of unjust police use of force, individual-level procedural justice assessments may combine with the social identity dynamics outlined by ESIM to generate widespread defiance and rebellion in crowds. There is now a growing body of evidence that both theories can play a useful role in understanding rebellion and violence in crowds.

Although this study makes some useful contributions to the literature, it is important to keep in mind the study's methodological limitations. First, we are uncertain about the representativeness of our sample since conventional random sampling methods would have been difficult to carry out given the complexities of the study environment. While we attempted to survey as many OWS participants as possible, our sampling strategy was not optimal (see footnote 3). Furthermore, although respondents who identified as 'nonparticipants' were excluded from the study, it is possible that subjective interpretations of 'partial or occasional participant' and 'full or regular participant' could have led to the inclusion of fringe individuals in our pool of respondents (see footnote 4). In addition, the study's findings rest upon OWS participants' accounts of police behaviors toward protesters, as well as participants' recollections of their own behavior toward the police. The validity and reliability of responses to these survey questions is unknown (see footnote 2). We were unable to survey police officers, nor were we able to compare protesters' accounts with official police records. While we conducted casual observation of the dynamics between police and protesters during the data collection period, we were unable to conduct more extensive systematic social observations of police-protester interactions. Thus, we do not have an external data source against which to triangulate the findings reported here. Finally, although we tested a mediational model that makes use of causal language, it is important to remember that the analysis relied on cross-sectional data, thus making it difficult to draw confident inferences about causality.

Furthermore, we recognize that procedural justice theory offers a unidimensional view of justice emphasizing process over other factors, such as equality (distributive justice) or morality ('substantive' justice). This framing of justice may be more or less appropriate in some contexts and among some populations, an assertion supported by several 'second wave' procedural justice studies (Barak, 2016; Murphy & Cherney, 2011; Pillai et al., 2001; Tankebe, 2009, 2013). For example, in a study of legal consciousness and procedural justice among Central American immigrants in deportation proceedings, Barak (2016) found that the impact of procedural justice on perceptions of state legitimacy, as well as compliance with the law, was outweighed by both distributive justice (i.e., the distribution of

deportation orders across immigrants) and substantive justice (i.e., moral claims to the free movement of people across national boundaries).

It is conceivable that other framings of justice may be just as important as procedural justice in the context of social justice movements such as the Occupy Movement, however, our survey was not constructed with this in mind. For example, the distribution of procedural injustice perceptions within our sample was highly skewed, with ~26% of respondents scoring at the maximum of the scale. We suspect that protesters generally understood unjust policing practices through a variety of lenses, some of which likely exist outside the narrow definition of procedural justice. It is possible that the survey instrument constrained or contorted respondent expression of perceptions of police injustice that involve structural – as opposed to incident-based – critiques of policing. It is also possible that the procedural injustice measures used here captured broader justice framings that might influence how protesters interpret interactions with the police. Future studies should explore the relationship between broader notions of justice, structural critiques of policing, and protester attitudes toward the use of violence.

Conclusion

This study makes two unique contributions to the literature. First, it enhances our understanding of the attitude-behavior connection in the use of violence by protesters. Second, it expands on recent research in applying procedural justice theory to the study of protest policing. To our knowledge, no prior research has used procedural justice measures to explain violence during protests. Future research should seek to expand our findings here by following a cohort of protesters across multiple encounters with police to understand more deeply how procedural justice measures and attitudes towards the use of violence change over the course of multiple protests. The procedural justice framework integrates well with prior understandings of crowd dynamics, which indicate that police play a central role in alleviating or instigating violence. The results of this study indicate that procedural injustice has strong potential for explaining not only the development of violent attitudes among protesters, but also violent behaviors.

Notes

1. Radburn et al. (2016) examine the role of procedural justice in protest policing, highlighting the role of *relational identification* – or ‘the extent to which those being policed identify with the police as a social category in their own right’ – in procedural justice assessments (Radburn et al., 2016, p. 3). In two separate laboratory studies, Radburn et al. (2016) found that relational identification with the police mediated the relationship between perceived procedural fairness and self-reported willingness to cooperate with the police. It is unclear to what extent these social identity dynamics may influence other outcomes such as people’s willingness to defy, or use violence against the police.
2. Given our survey protocol, many surveys were administered openly in public spaces, often within range of a visible police presence. Others were administered in more secluded locations out of earshot – and eyesight – of police. Despite this, completion of the survey was a relatively solitary act. Questions were neither read aloud to participants nor answered aloud by participants and, instead, participants were given paper surveys to complete on their own. What is more, personal identifiers were not collected as part of the survey process, affording OWS participants some anonymity and confidentiality, and survey participation was voluntary – participants were instructed that they could skip questions or stop the survey at any time. Finally, as a group, OWS participants were generally outspoken, openly expressing anti-state and anti-police opinions as part of their protest agenda, and regularly documenting – and making public – police–protester interactions. Thus, although the survey instrument was administered in public spaces with varying levels of police presence and asked participants to disclose personal acts of violence against the police, we are no more concerned with self-reporting accuracy in this case than we would be given any similarly situated study of offending, victimization, and perceptions of the police administered in a more private setting (Bates & Cox, 2008; Harrison, 1997; Hindelang et al., 1979; Huizinga & Elliott, 1986; Kirk, 2006).
3. Systematic selection methods have been used in some studies to approximate random sampling of people involved in protests and demonstrations (e.g., Fisher et al., 2005, p. 106). This technique can be most useful at

events with large numbers of participants (thus allowing for some participants to be excluded from selection and still generate an effective sample size) who are relatively stable in their movements. This approach was not well-suited for the study described here. First, we surveyed individuals in a meeting and at a protest event. The sampling methods used at an outdoor protest event would be different for an indoor, more controlled meeting. At the OWS meeting we did not use a sample, we surveyed every participant. Second, the numbers of people who participated in the OWS events were not large and using a sample would not have generated enough individuals that would allow us to analyze the data as we had planned. We attempted to survey all protesters present at the two events. Third, the protesters at the March 17th event moved around frequently and rarely stayed in the same area very long. Tracking refusals in this setting was challenging because sometimes refusals were temporary with protesters sometimes declining to complete a survey at one time and then agreeing later. It would not have been possible to calculate a meaningful refusal rate.

4. The initial survey questions asked potential respondents to indicate whether they identified as either a 'nonparticipant' (i.e., observers or supporters), 'partial or occasional participant,' or a 'full or regular participant.' Those who identified as a nonparticipant were not invited to complete the survey. Forty-five people agreed to complete the survey but their data were excluded from the analysis because they self-identified as a nonparticipant.
5. Estimating the size of OWS is challenging because it was not a single event or even a small number of events that allowed most to be observed and counted. Well-established methods exist for estimating crowd sizes at outdoor events such as protests and mass demonstrations (McPhail & McCarthy, 2005; Watson & Yip, 2011). However, OWS consisted of hundreds of individual events of different sizes and some people attending these events were not directly affiliated with OWS. Crowd estimates from these events may not be particularly accurate or useful.
6. A confirmatory factor analysis treating these five items as indicators of a single latent variable revealed that the model fit the data well ($\chi^2 = 9.54$, $df = 5$, $p = .09$; RMSEA = .056; CFI = .998; TLI = .997; WRMR = .366). The factor loadings for the five items ranged from .64 to .91, with a mean of .73 and a median of .66. The additive index used here has a Cronbach's alpha value of .89, indicating a high level of internal consistency.
7. We conceptualize the relationships between the items and the overall construct as formative rather than reflective in this case. The distinction between formative and reflective specifications is based on the anticipated direction of effects between a latent construct and its indicators (Diamantopoulos & Winklhofer, 2001). In reflective models, which are more common, the latent construct is thought to influence its indicators, unlike in formative models in which the indicators are thought to influence the latent construct. In this case, a formative specification is more intuitive because perceptions of the extent to which police in the area use unjust force against protesters would seem to develop as a result of having observed or experienced the types of behaviors covered by the seven indicators (see Appendix A).
8. Consistent with previous research, we measured stake in conformity using three indicators: age of respondent, whether the respondent has a full-time job, and whether the respondent is a college graduate (Maguire et al., 2016, *in press*). We combined these three indicators into a single measure using principal components analysis.
9. The multiple imputation method used here is carried out using Bayesian estimation (Asparouhov & Muthén, 2010; Enders, 2010; Rubin, 1987).

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix A. Scale items

Self-Reported Use of Violence against Police (3 items)

- Resisting being searched or arrested by police in the area
- Grabbing, pushing, hitting, or kicking police in the area
- Throwing an object at police in the area

Perceived procedural Injustice by Police (5 items, reverse coded)

- Police in the area treat people with respect
- Police in the area take time to listen to people
- People in the area treat people fairly
- People in the area respect people's rights
- Police in the area are honest and trustworthy

Perceived unjust Use of Force by Police (7 items)

- Police in the area have unjustly threatened to use force against a protester
- Police in the area have unjustly grabbed, pushed, hit, or kicked a protester
- Police in the area have unjustly used pepper spray or another chemical against a protester
- Police in the area have unjustly used a TASER or stun gun against a protester
- Police in the area have unjustly used a K-9 against a protester
- Police in the area have unjustly pointed a gun at a protester
- Police in the area have unjustly arrested a protester

Stake in Conformity (3 items)

- College graduate
- Employed full time
- Age

Support for the Use of Violence against Police (3 items)

- Using minor forms of violence against police (pushing, shoving)
- Using moderate forms of violence against police (hitting, kicking)
- Using severe forms of violence against police (throwing harmful objects or using a weapon)